PROC. BIOL. SOC. WASH.
106(1), 1993, pp. 85–91

ERYTHROSQUILLOIDEA, A NEW SUPERFAMILY, AND TETRASQUILLIDAE, A NEW FAMILY OF STOMATOPOD CRUSTACEANS

Raymond B. Manning and David K. Camp

Abstract.—The superfamily Erythrosquilloidea is erected for the family Erythrosquillidae, which contains one genus and species, *Erythrosquilla megalops* Manning & Bruce, 1984. This new superfamily differs from the Bathysquilloidea, Gonodactyloidea, and Squilloidea by its member having broad and ventrally beaded propodi of the third and fourth maxillipeds; it differs from the Lysiosquilloidea by having a distinct dorsal median carina on the telson. The superfamily may represent a relict lineage within the Stomatopoda. The family Tetrasquillidae is erected in the superfamily Lysiosquilloidea for three genera, the monotypic *Tetrasquilla* Manning & Chace, 1990; *Tectasquilla* Adkison & Hopkins, 1984; and *Heterosquillopsis* Moosa, 1991, which contains three species. This new family can be distinguished from the three families now remaining in the Lysiosquilloidea by its members having ovate rather than styliform (as in the Lysiosquillidae) distal segments of the endopods of the first two walking legs, by lacking an enlarged basal lobe on the dactylus of the claw (Coronididae), and by lacking a strong proximal fold on the outer margin of the uropodal endopod (Nannosquillidae). The only known pantropical stomatopod, *Tetrasquilla mccullochae* (Schmitt, 1940), is included in this family.

Manning & Bruce (1984:332) tentatively placed their newly erected family Erythrosquillidae in the superfamily Lysiosquilloidea based on the presence of broad, ventrally beaded propodi of the third and fourth maxillipeds of the only member of the family, *Erythrosquilla megalops* Manning & Bruce, 1984 (Fig. 1). They pointed out, however, that the Erythrosquillidae differ from other lysiosquilloids by having a sharp, dorsal median carina on the telson, by lacking a ventrolateral projection on the sixth abdominal somite overhanging the articulation of the uropods, and by having a smaller ventral papilla of the antennal protopod. The first of those three characters is currently considered important in distinguishing superfamilies of the stomatopods, and we use it here to help differentiate the new superfamily defined below. Our removal of the Erythrosquillidae from the Lysiosquilloidea leaves three families in that superfamily: Coronididae Manning, 1980, Lysiosquillidae Giesbrecht, 1910, and Nannosquillidae Manning, 1980.

Camp & Kuck (1990:852) pointed out that a new family might have to be erected for *Heterosquilloides mccullochae* (Schmitt, 1940), a species placed in the recently erected, monotypic genus *Tetrasquilla* by Manning & Chace (1990) and assigned to the Lysiosquillidae. Camp & Kuck (1990) noted that characters of the species fit none of the lysiosquilloid families then known (Manning 1980), and that it also could not be accommodated in the Erythrosquillidae Manning & Bruce. A new family is diagnosed here for *T. mccullochae* and for the related *Tectasquilla lutzae* Adkison & Hopkins, 1984 (Fig. 2). Keys to the superfami-

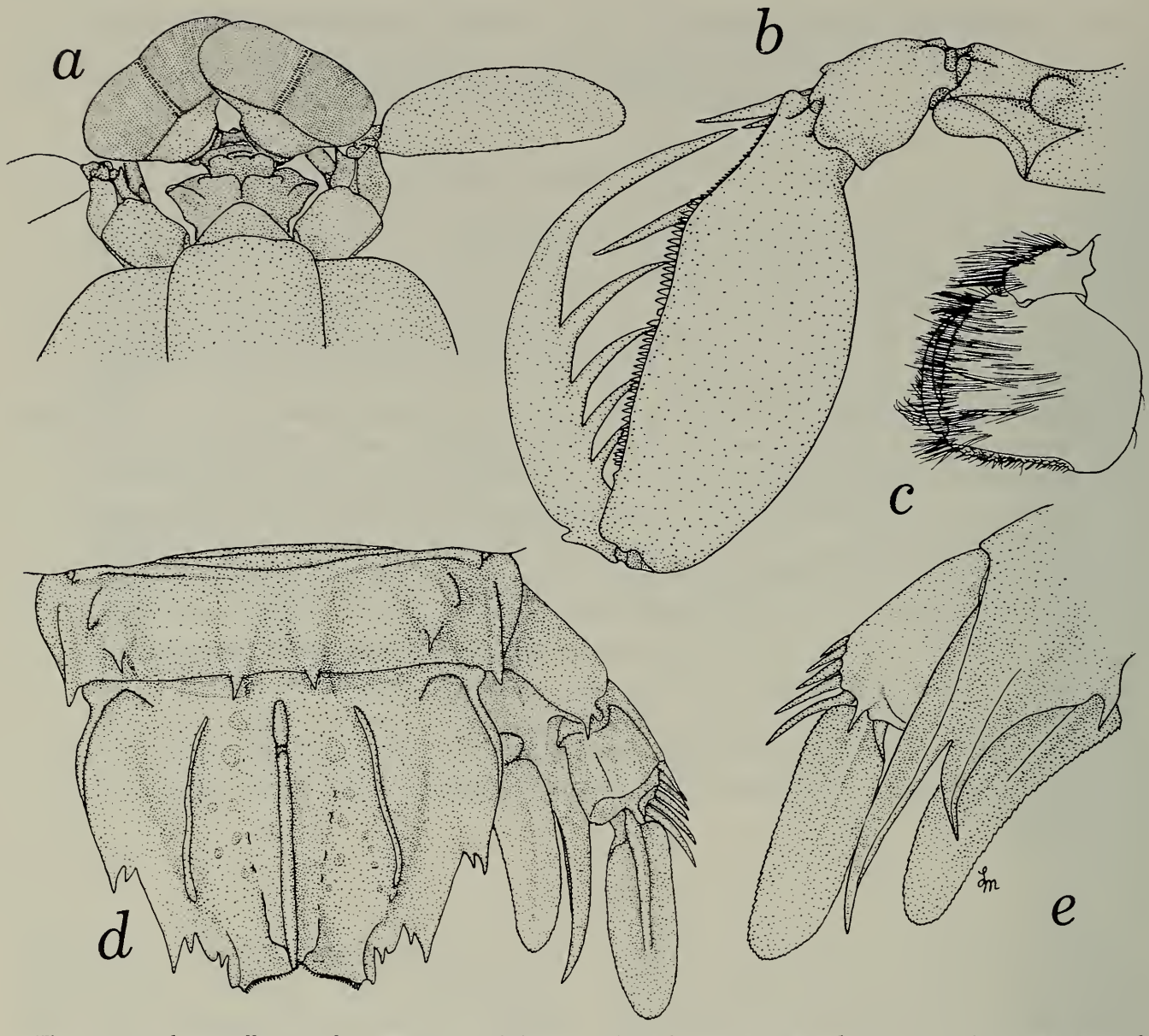

Fig. 1. *Erythrosquilla megalops* (Erythrosquillidae). *a,* Anterior appendages; *b,* Claw; *c,* Distal segments of third maxilliped; *d,* Sixth abdominal somite, telson, and uropod; *e,* Uropod, ventral view (from Manning & Bruce 1984:fig. 1).

lies of Recent Stomatopoda and to the families of Lysiosquilloidea are presented below.

Abbreviations used include mm (millimeters), tl (total length, measured on midline in mm), and USNM (National Museum of Natural History, Smithsonian Institution, Washington, D.C.). The specimens illustrated herein are as follows: *Erythrosquilla megalops,* male holotype, tl 105, Indian Ocean off Somalia, USNM 195339; *Coronida bradyi* (A. Milne Edwards, 1869), female, tl 33, Annobon Island, Gulf of Guinea, USNM 151531; *Lysiosquilla scabricauda* (Lamarck, 1818), male, tl 227, Fort Pierce, Florida, USNM 152469 (walking legs) and female, tl 44, St. Lucie Inlet, Florida, USNM 256888 (uropod and claw); *Nannosquilla grayi* (Chace, 1958), female holotype, tl 40, Bass River, Massachusetts, USNM 100931 (claw) and female paratype, tl 41, same locality, USNM 100932 (walking legs and uropod); *Tetrasquilla mccullochae,* female, tl 32, Alligator Reef, Florida, USNM 111028; *Tectasquilla lutzae,* male holotype, tl 73, Gulf of Mexico, off northwestern Florida, USNM 204717.

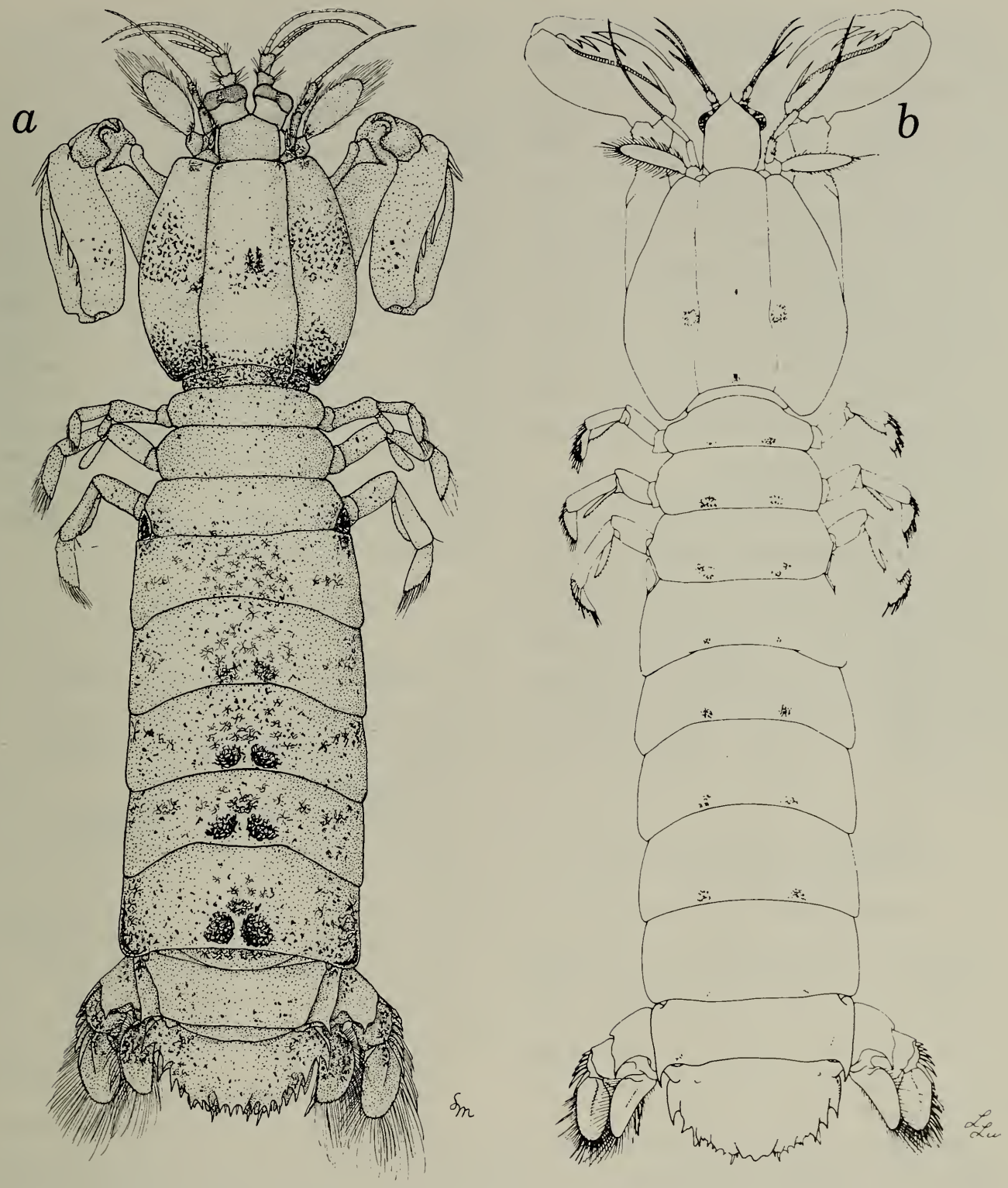

Fig. 2. *a, Tetrasquilla mccullochae* (from Manning & Chace 1990:fig. 46); *b, Tectasquilla lutzae* (from Adkison & Hopkins 1984:fig. 1a).

Erythrosquilloidea, new superfamily

Diagnosis.—Propodi of third and fourth maxillipeds broad, ventrally beaded. Telson with distinct dorsal median carina. At most, submedian marginal teeth of telson with movable apices. No more than 2 intermediate denticles present on telson.

Type genus.—*Erythrosquilla* Manning & Bruce, 1984, herein designated.

Included families.—Erythrosquillidae Manning & Bruce, 1984.

Remarks.—The superfamily Erythrosquilloidea can be distinguished from Bathysquilloidea Manning, 1967, Gonodactyloidea Giesbrecht, 1910, and Squilloidea Latreille, 1803 by the propodi of the third and fourth maxillipeds being broad and ventrally beaded rather than being slender and not ventrally beaded; the superfamily can be distinguished from the Lysiosquilloidea Giesbrecht, 1910 by having a distinct dorsal median carina on the telson. See Manning & Bruce (1984:332) for a further discussion of the relationship of the possibly relict Erythrosquillidae to the other stomatopod superfamilies.

We take this opportunity to correct errors in the definitions of the families Coronididae and Lysiosquillidae presented in Manning (1980:368) and in the description of *Erythrosquilla megalops* in Manning & Bruce (1984:331). In each instance, reference to the lack of a strong fold on the inner margin of the uropodal endopod should refer instead to the outer margin of that appendage.

Superfamily Lysiosquilloidea Giesbrecht, 1910
Tetrasquillidae, new family

Diagnosis.—Size medium, total lengths of adults <75 mm. Body compact, depressed. Dactylus of claw not inflated basally. Endopods of anterior 2 walking legs ovate. Uropodal endopod lacking strong proximal fold on outer margin.

Type genus.—*Tetrasquilla* Manning & Chace, 1990, herein designated.

Included genera.—Three: *Tetrasquilla* Manning & Chace, 1990, containing only *T. mccullochae* (Schmitt, 1940), the only known pantropical stomatopod (see Manning & Chace 1990); *Tectasquilla* Adkison & Hopkins, 1984, containing only *Tectasquilla lutzae* Adkison & Hopkins, 1984, known only from off northwestern Florida and Georgia, U.S.A.; and *Heterosquillopsis* Moosa, 1991, containing three species from the Indo-West Pacific, *H. insueta* (Manning, 1970), *H. philippinensis* (Moosa, 1986), and *H. danielae* Moosa, 1991, the type species.

Remarks.—This new family can be readily distinguished from the three other families now remaining in the Lysiosquilloidea. The Tetrasquillidae differ from the Lysiosquillidae in that the distal segment of the endopods of the first two walking legs are ovate (Fig. 3j, k, m) rather than slender and styliform (Fig. 3d, e). The Tetrasquillidae differ from the Nannosquillidae by lacking a strong proximal fold on the outer margin of the uropodal endopod (compare Fig. 4c and 4d, e). The Tetrasquillidae can be distinguished from the Coronididae by the claw (Fig. 5d, e) having the propodus pectinate for all its length and by lacking the basal inflation of the dactylus (Fig. 5a).

Key to Superfamilies of Recent Stomatopoda (Modified from Manning 1980)

1. Propodi of third and fourth maxillipeds slender, not beaded or ribbed ventrally 2
– Propodi of third and fourth maxillipeds broad, usually beaded or ribbed ventrally 4
2. All marginal teeth of telson with movable apices ..... Bathysquilloidea
– At most, submedian marginal teeth of telson with movable apices 3
3. Four or more intermediate denticles present on telson ..... Squilloidea
– Two or fewer intermediate denticles present on telson ... Gonodactyloidea
4. Telson lacking sharp dorsal median carina ..... Lysiosquilloidea
– Telson with sharp dorsal median carina ..... Erythrosquilloidea

Key to Families of Lysiosquilloidea

1. Dactylus of claw inflated basally. Propodus of claw pectinate proximally only ..... Coronididae
– Dactylus of claw not inflated basally. Propodus of claw completely lined with pectinations 2

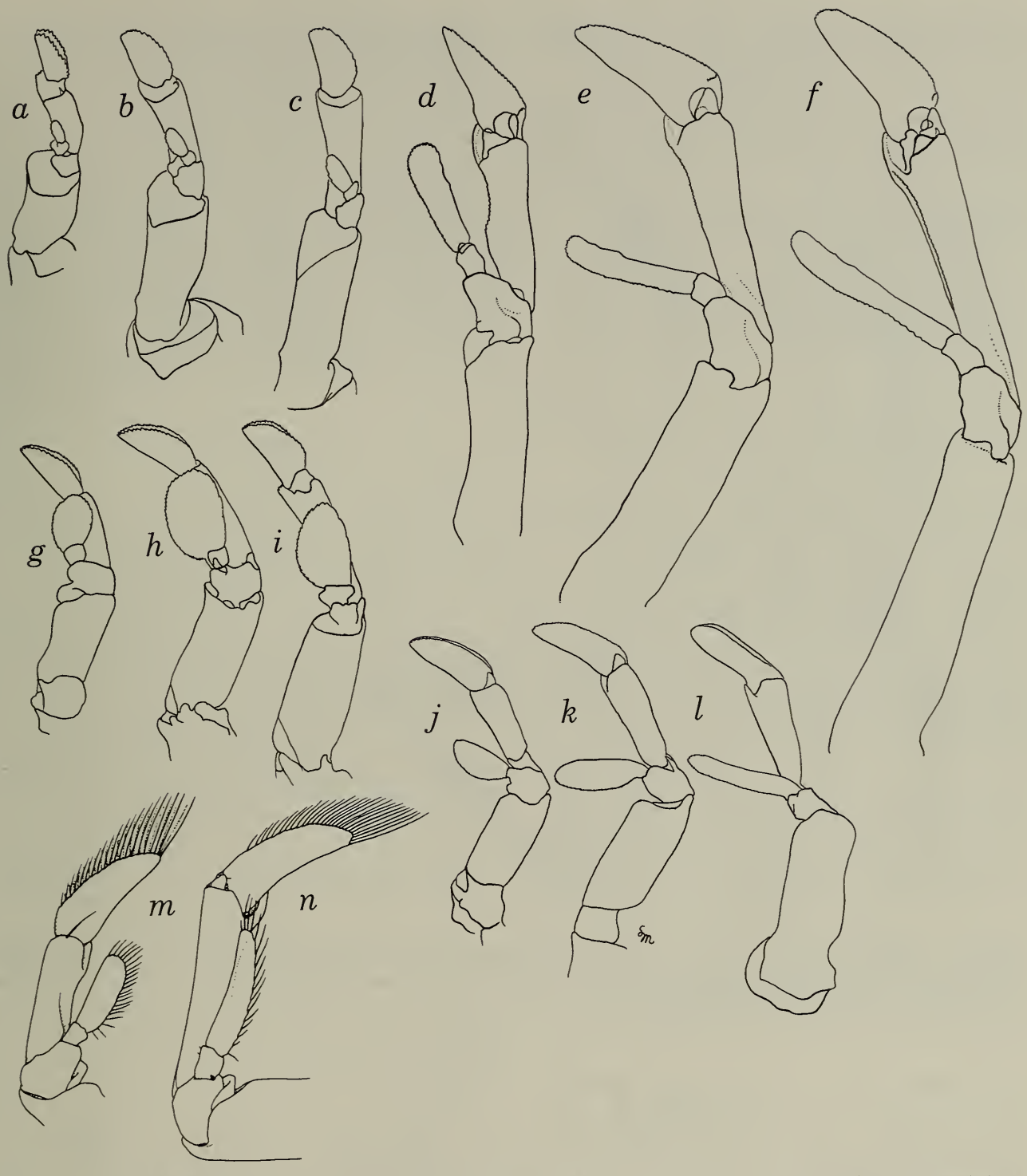

Fig. 3. Walking legs 1–3: *a–c, Coronida bradyi* (Coronididae); *d–f, Lysiosquilla scabricauda* (Lysiosquillidae); *g–i, Nannosquilla grayi* (Nannosquillidae); *j–l, Tetrasquilla mccullochae* (Tetrasquillidae); *m–n, Tectasquilla lutzae* (Tetrasquillidae) (legs 1 and 3; from Adkison & Hopkins 1984:fig. 2h, i).

2. Proximal portion of outer margin of uropodal endopod with strong fold ..... Nannosquillidae
– Proximal portion of outer margin of uropodal endopod lacking strong fold 3
3. Distal segment of endopod of anterior two walking legs slender, styliform ..... Lysiosquillidae
– Distal segment of endopod of anterior two walking legs broadly ovate ..... Tetrasquillidae

Acknowledgments

The figures were prepared by Lilly King Manning. Studies on stomatopod systematics have been supported by the Smithson-

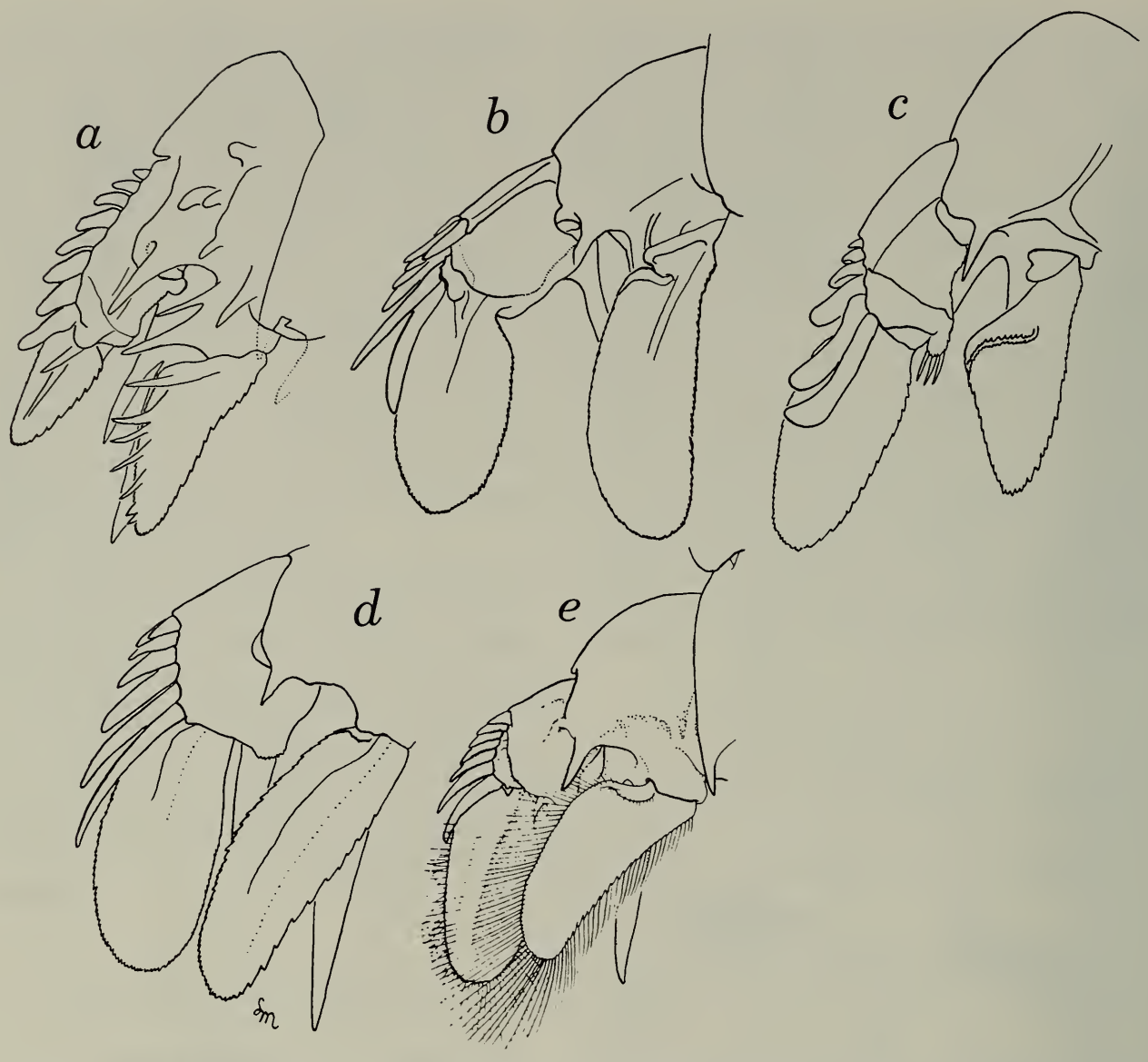

Fig. 4. Uropods, dorsal view: *a, Coronida bradyi* (Coronididae); *b, Lysiosquilla scabricauda* (Lysiosquillidae); *c, Nannosquilla grayi* (Nannosquillidae); *d, Tetrasquilla mccullochae* (Tetrasquillidae); *e, Tectasquilla lutzae* (Tetrasquillidae) (from Adkison & Hopkins 1984:fig. 2e).

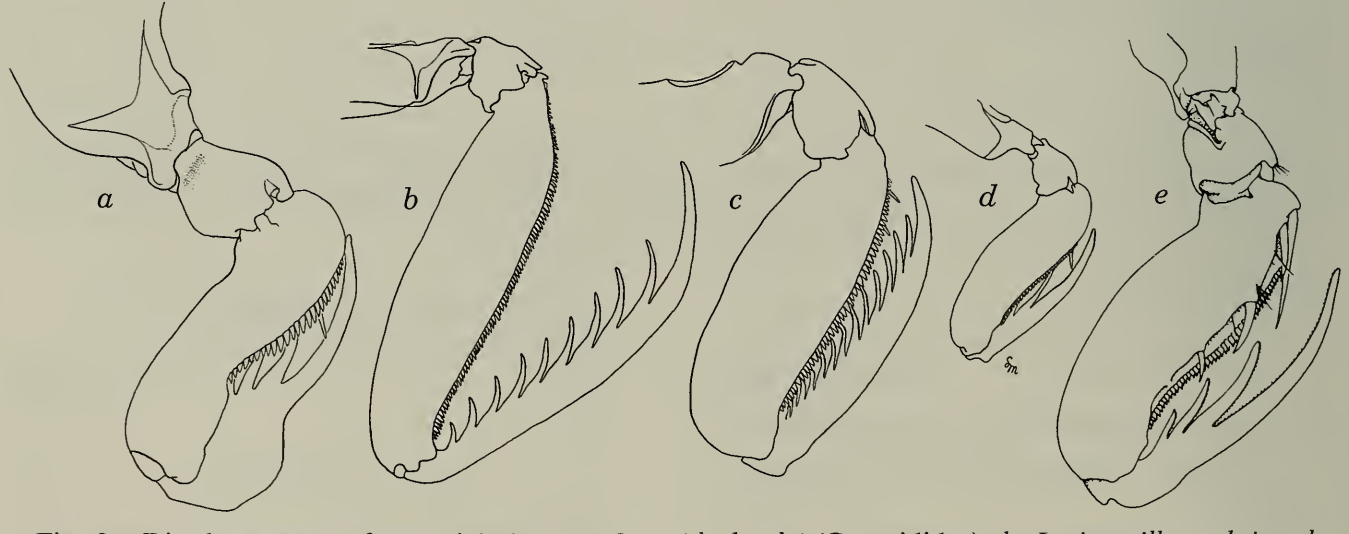

Fig. 5. Distal segments of raptorial claw: *a, Coronida bradyi* (Coronididae); *b, Lysiosquilla scabricauda* (Lysiosquillidae); *c, Nannosquilla grayi* (Nannosquillidae); *d, Tetrasquilla mccullochae* (Tetrasquillidae); *e, Tectasquilla lutzae* (Tetrasquillidae) (from Adkison & Hopkins 1984:fig. 1f).

ian Institution through its Scholarly Studies Program and the Smithsonian Marine Station at Link Port, Florida; this is contribution number 304 from that station. The second author (DKC) thanks K. A. Steidinger, Chief, Florida Marine Research Institute (FMRI), for supporting systematics research on the marine biota of Florida, and colleagues at FMRI, L. French, J. Leiby, W. G. Lyons, T. H. Perkins, and J. F. Quinn, Jr., for suggesting improvements to the manuscript.

Literature Cited

Adkison, D. L., & T. S. Hopkins. 1984. *Tectasquilla lutzae,* new genus and species (Crustacea: Stomatopoda: Lysiosquillidae) from the Gulf of Mexico.—Proceedings of the Biological Society of Washington 97:532–537.

Camp, D. K., & H. G. Kuck. 1990. Additional records of stomatopod crustaceans from Isla del Coco and Golfo de Papagayo, eastern Pacific Ocean.—Proceedings of the Biological Society of Washington 103:847–853.

Chace, F. A., Jr. 1958. A new stomatopod crustacean of the genus *Lysiosquilla* from Cape Cod, Massachusetts.—Biological Bulletin, Woods Hole 114(2):141–145.

Giesbrecht, W. 1910. Stomatopoden, Erster Theil.—Fauna und Flora des Golfes von Neapel 33:vii + 239 pp., pls. 1–11.

Lamarck, J. B. P. A. de. 1818. Histoire naturelle des animaux sans vertebrès, présentant les caractères généraux et particuliers de ces animaux, leur distribution, leurs classes, leurs familles, leurs genres, et la citation des principales espèces qui s'y rapportent; précédée d'une introduction offrant la détermination des caractères essentiels de l'anomas, sa distinction du végétal et des autres corps naturelles, enfin, l'exposition des principes fondamentaux de la zoologie 5:612 pp., Deterville, Paris.

Latreille, P. A. 1803. Histoire naturelle, générale et particulière, des Crustacés et des Insectes 3:467 pp., F. Dufart, Paris.

Manning, R. B. 1967. Preliminary account of a new genus and a new family of Stomatopoda.—Crustaceana 13:238–239.

———. 1970. Two new stomatopod crustaceans from Australia.—Records of the Australian Museum 28(4):77–85.

———. 1980. The superfamilies, families, and genera of Recent stomatopod Crustacea, with diagnoses of six new families.—Proceedings of the Biological Society of Washington 93:362–372.

———, & A. J. Bruce. 1984. *Erythrosquilla megalops,* a remarkable new stomatopod from the western Indian Ocean.—Journal of Crustacean Biology 4:329–332.

———, & F. A. Chace, Jr. 1990. Decapod and stomatopod Crustacea from Ascension Island, South Atlantic Ocean.—Smithsonian Contributions to Zoology 503:v + 91 pp.

Milne Edwards, A. 1869. Rade de Saint-Vincent du Cap-Vert (supplément). Pp. 136–138, pl. 17 *in* L. de Folin & L. Périer, 1867–1872, Les fonds de la mer, étude internationale sur les particularités nouvelles des régions sous-marins, 1, Bordeaux.

Moosa, M. K. 1986. Stomatopod Crustacea. Résultats du Campagnes MUSORSTOM I & II Philippines, 2.—Mémoires du Muséum National d'Histoire Naturelle, Paris (Series A, Zoology) 133:367–414, pl. 1.

———. 1991. The Stomatopoda of New Caledonia and Chesterfield Islands. Pp. 149–219 *in* B. Richer de Forges, ed., Le benthos des fonds meubles des lagons de Nouvelle-Calédonie, 1, Editions de l'ORSTOM, Paris.

Schmitt, W. L. 1940. The stomatopods of the west coast of America based on collections made by the Allan Hancock Expeditions, 1933–38.—Allan Hancock Pacific Expeditions 5(4):129–225.

(RBM) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A.; (DKC) Florida Marine Research Institute, 100 Eighth Avenue SE, Saint Petersburg, Florida 33701-5095, U.S.A.